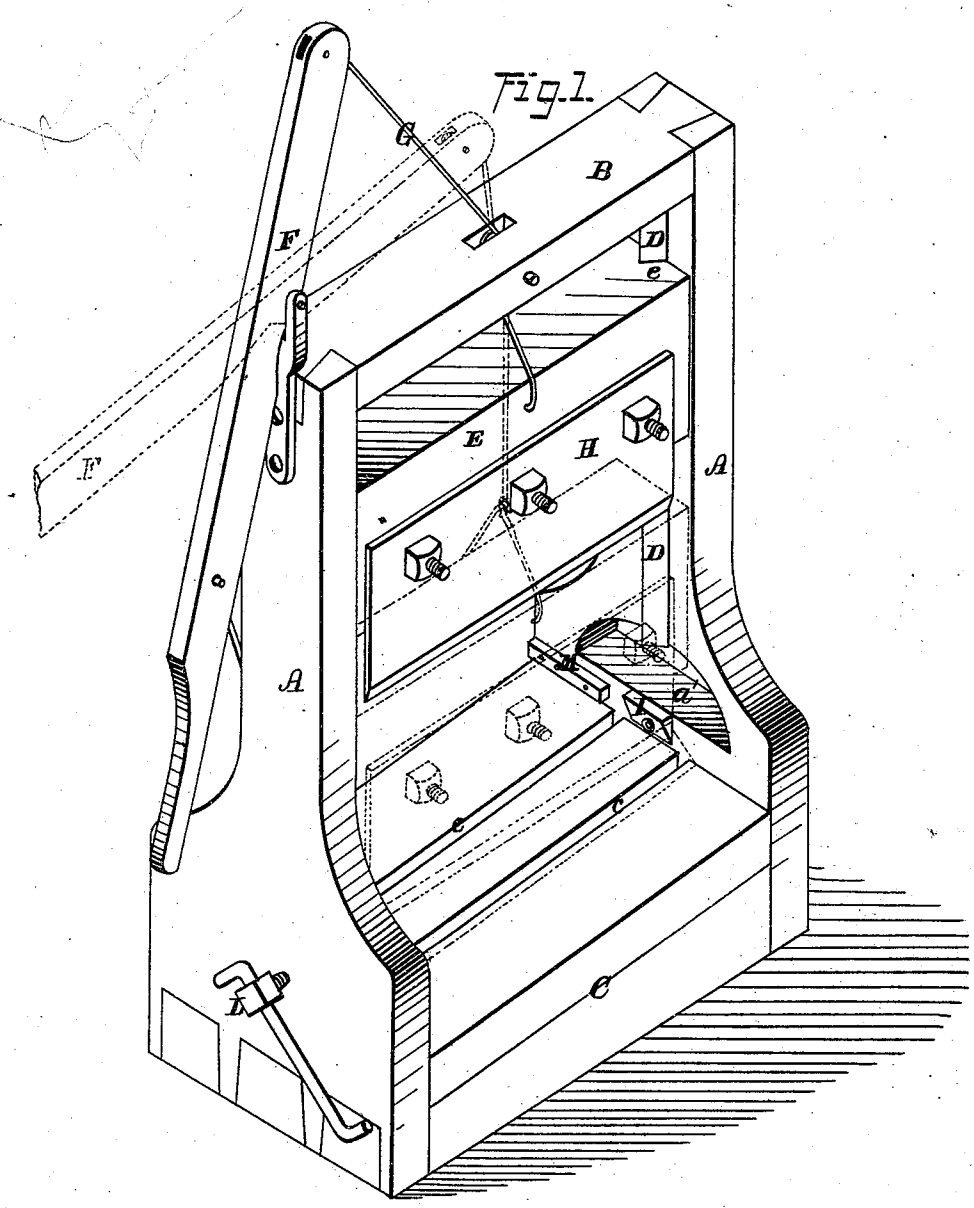
2 Sheets—Sheet 1.

D. RAIT.

MACHINE FOR TRIMMING STAVE BLANKS.

No. 183,417. Patented Oct. 17, 1876.

Fig. 1.



WITNESSES:

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2 Sheets—Sheet 2.

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Fig. 2.

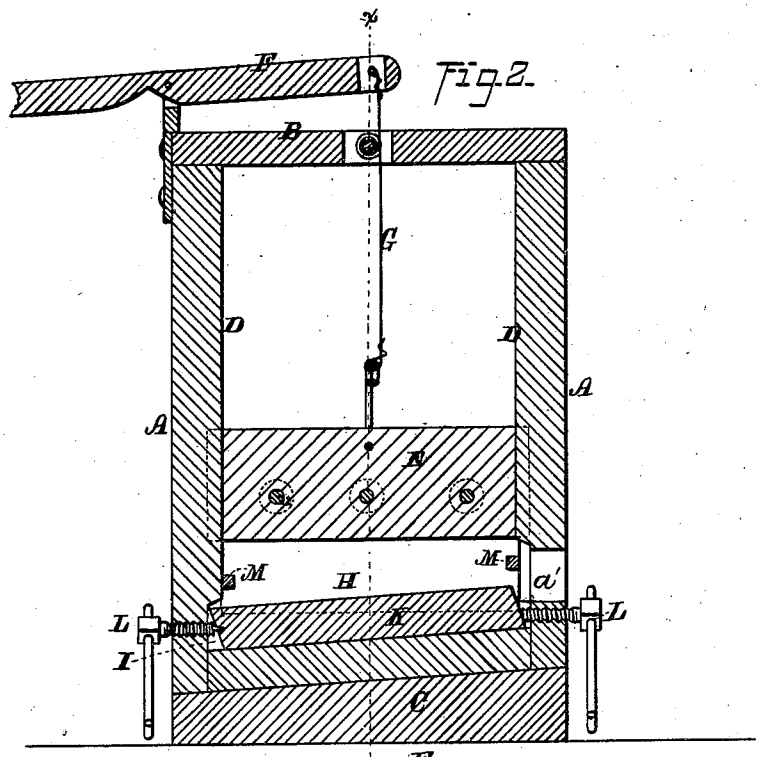
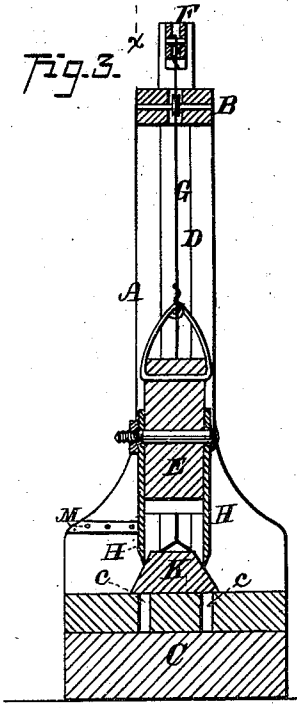


Fig. 3.



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UNITED STATES PATENT OFFICE.

DAVID RAIT, OF BROOKLYN, N. Y., ASSIGNOR TO HENRY T. RICHARDSON.

IMPROVEMENT IN MACHINES FOR TRIMMING STAVE-BLANKS.

Specification forming part of Letters Patent No. **183,417**, dated October 17, 1876; application filed August 14, 1876.

To all whom it may concern:

Be it known that I, DAVID RAIT, of Brooklyn, in the county of Kings, and in the State of New York, have invented certain new and useful Improvements in Apparatus for Trimming Staves, Butts, Heading, &c.; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved machine as arranged for use, the full lines showing the cutting-head in an elevated position, while the dotted lines show said part depressed. Fig. 2 is a central longitudinal section of the same; and Fig. 3 is a vertical section upon line *x x* of Fig. 2.

Letters of like name and kind refer to like parts in each of the figures.

In the manufacture of staves it is customary to rive the log upon radial lines, so that the staves furnished for shipment have the form, transversely, of segments of a circle, being widest upon the outer or sap portion and narrowest at their inner or heart edge, in which shape said staves are difficult to haul and stow away for transportation, and cause a large and an unnecessary expense for the transportation of surplus stock. To remedy these objections and enable the staves to be reduced in the forest to a proper size and form is the design of my invention; which consists, principally, in the employment of two cutters or knives, secured in parallel lines upon a head, and capable of being moved vertically and caused to impinge upon a stave and remove from its sides all surplus stock, substantially as is hereinafter specified.

It consists, further, in the means employed for confining in position the stave being operated upon, substantially as is hereinafter shown.

It consists, further, in the means employed for giving to said knives a shearing or hewing cut, substantially as and for the purpose hereinafter set forth.

It consists, further, in the machine, as a whole, its several parts being constructed and combined to operate in the manner and for the purpose substantially as hereinafter shown and described.

It consists, finally, in the means employed for confining the stave in position while its edges are being trimmed, substantially as is hereinafter specified.

In the annexed drawings, A and A represent two standards, which are arranged in parallel lines, and are secured together at their upper and lower ends, respectively, by means of a cross-bar, B, and a base, C. Said base and the lower portions of said standards have several times the width of said cross-bar B, so as to afford a firm bearing for the machine. Upon the inner face, at the transverse center of each standard A, is secured a way or guide, D, which is preferably Λ-shaped, and upon and between the same is fitted a block, E, that at its ends is provided with bearings *e*, which correspond to and embrace said ways and enable said block to be moved vertically thereon. A lever, F, pivoted near its center to or upon the upper side of the frame, and connected with the block E by a cord or chain, G, that extends between the upper end of said lever and the upper side at the longitudinal center of said block, enables the latter to be raised or lowered at will. Upon each side of the block or sliding head E is secured a cutter or knife, H, which has nearly as great length, and extends downward to a distance below said head somewhat greater than the width of the stave to be operated upon. The base C has, preferably, at its upper side an inclination from end to end, as seen in Fig. 2, and within its face is provided with grooves *c* and *c*, which correspond in size and horizontal position to the cutters H and H, and receive the lower cutting-edges of the same when the head E is lowered. Between the grooves *c* and *c* a block, I, is secured to or upon the inner face at the lower end of each standard A, which block has its inner face formed upon a line, which has a right angle to the inclined face of the base C. The distance between the blocks I and I is slightly greater than the length of the stave to be operated upon, and when such stave K is placed between said blocks upon the base C it is locked in place by a screw, L, which passes inward through the standard A, and at its inner end engages with the contiguous end of said stave, while the opposite end of the latter is pressed firmly against the opposite block I.

If desired, a screw, L, may be provided at each end of the stave K, or the blocks I and I may be made of metal, with their inner faces roughened and arranged to be moved inward and outward by said screws, and engage with the ends of said stave. An opening, *a'*, provided in one of the standards A enables the stave to be inserted to or removed from place.

As thus constructed, the machine is ready for use, as follows: A stave being placed in position, the sliding head is raised and permitted to fall until its cutters have removed the surplus material from the sides of said stave and reduced the same to an uniform thickness. If any of the heart or sap remains upon the edge of the stave, the same may be removed by placing said stave upon its side with the heart or sap portion extended inward beyond the line of cut of the contiguous knife, and then causing the latter to impinge upon said stave, as before. In order that the stave may be held in position while being thus trimmed at its edges, a cleat, M, is secured to the inner face of each standard, parallel with and at a suitable distance above the base C, to permit said stave to be passed beneath. In consequence of the inclination of the base, the cutters have a shearing cut with the grain, and do not injure or tear the wood being operated upon; but if said base is constructed with a horizontal face and the lower edges of said cutters are inclined, the same result will be produced.

The machine thus described may be constructed in pieces, so as to be readily moved by the operators as they change positions in the woods.

While intended for use in trimming staves, the mechanism described may with equal facility be employed for dressing wainscot, billets, butts, bolts, heading, and any form of rived timber.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The vertically-reciprocating head E, provided with the parallel cutters H and H, the ways D and D, secured upon the standards A and A, and arranged to receive the grooved ends of said head, and the base C, connecting together said standards and furnishing a support for the material being operated upon, in combination with each other and with the mechanism for raising and releasing said head, substantially as and for the purpose specified.

2. The means employed for securing the stave-blank in place, consisting of blocks I and I, secured to or upon the inner faces of the standards A and A, and the screw L, passing horizontally inward through one of said standards and blocks, said parts being combined to operate substantially as shown.

3. In combination with the cutters H and H, attached to the head E and arranged to reciprocate vertically, the base C, provided with the grooves *c* and *c*, and having an inclination of its upper face with relation to the line of the cutting-edges of said cutters, substantially as and for the purpose set forth.

4. The standards A and A, cross-bar B, base C *c c*, guides D and D, sliding head E, lever F, cord G, cutters H and H, end blocks I and I, and screws L and L, all constructed and combined to operate in the manner and for the purpose substantially as shown and described.

5. In combination with the standards A and A, the base C, and with the vertically-reciprocating cutters H and H, the cleats M and M, secured upon said standards, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of August, 1876.

DAVID RAIT.

Witnesses:
JOHN EADIE,
GEO. W. QUACKENBOSS.